

1. A target for physical vapor deposition of a seed layer, comprising:  
copper; and  
a metal selected from the group consisting of aluminum, magnesium, titanium, zirconium, tin, and combinations thereof, wherein the metal is present in the target in a concentration between about 0.001 atomic percent and about 5.0 atomic percent.
2. The target of claim 1, wherein the metal is present in the target in a concentration between about 0.01 atomic percent and about 2.0 atomic percent.
3. The target of claim 1, wherein the metal is present in a concentration between about 0.1 atomic percent and about 1.0 atomic percent.
4. A chamber adapted to deposit a seed layer, comprising:  
a target comprising copper and a metal selected from the group consisting of aluminum, magnesium, titanium, zirconium, tin, and combinations thereof, wherein the metal is present in the target in a concentration between about 0.001 atomic percent and about 5.0 atomic percent.
5. The chamber of claim 4, wherein the metal is present in the target in a concentration between about 0.01 atomic percent and about 2.0 atomic percent.
6. The chamber of claim 4, wherein the metal is present in a concentration between about 0.1 atomic percent and about 1.0 atomic percent.

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7. (Amended) A system for processing a substrate, comprising:  
at least one atomic layer deposition barrier chamber for depositing a barrier layer;  
at least one metal seed chamber for depositing a copper alloy seed layer over the barrier layer, wherein the copper alloy seed layer comprises copper and a metal selected from the group consisting of aluminum, magnesium, titanium, zirconium, tin,

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and combinations thereof and wherein the metal is present in the copper alloy in a concentration between about 0.01 atomic percent and about 2.0 atomic percent.

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8. (Canceled) The system of claim 7, further comprising a second chamber for depositing a barrier layer, wherein the copper alloy seed layer is deposited over the barrier layer.

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A2  
9. (Amended) The system of claim 7, wherein the metal seed chamber is selected from the group consisting of a physical vapor deposition metal seed chamber, a chemical vapor deposition metal seed chamber, an atomic layer deposition metal seed chamber, and an electroless deposition metal seed chamber.

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10. (Canceled) The system of claim 8, wherein the second chamber is selected from the group consisting of an atomic layer depositing chamber, a chemical vapor deposition chamber, and a physical vapor deposition chamber.

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11. (Amended) The system of claim 7, wherein the metal seed chamber is a physical vapor deposition metal seed chamber.

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A3  
12. (Amended) The system of claim 7, further comprising one or more transfer chambers for transferring a substrate between the atomic layer deposition barrier chamber and the metal seed chamber.

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13. (Canceled) The system of claim 8, wherein at least two of the chambers are a single chamber.

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A4  
14. (Amended) A system for processing a substrate, comprising:  
at least one atomic layer deposition barrier chamber for depositing a barrier layer;  
at least one copper alloy seed chamber for depositing a copper alloy seed layer over the barrier layer, wherein the copper alloy seed layer comprises copper and a

metal selected from the group consisting of aluminum, magnesium, titanium, zirconium, tin, and combinations thereof, and

at least one undoped copper seed chamber for depositing an undoped copper seed layer over the copper alloy seed layer.

15. (Canceled) The system of claim 14, further comprising a third chamber for depositing a barrier layer, wherein the copper alloy seed layer is deposited over the barrier layer.

16. (Amended) The system of claim 14, wherein the copper alloy seed chamber is selected from the group consisting of a physical vapor deposition copper alloy seed chamber, a chemical vapor deposition copper alloy seed chamber, an atomic layer deposition copper alloy seed chamber, and an electroless deposition copper alloy seed chamber.

17. (Amended) The system of claim 14, wherein the undoped copper seed chamber is selected from the group consisting of a physical vapor deposition undoped copper seed chamber, a chemical vapor deposition undoped copper seed chamber, an atomic layer deposition undoped copper seed chamber, and an electroless deposition undoped copper seed chamber.

18. (Canceled) The system of claim 15, wherein the third chamber is selected from the group consisting of an atomic layer depositing chamber, a chemical vapor deposition chamber, and a physical vapor deposition chamber.

19. (Amended) The system of claim 14, wherein the copper alloy seed chamber is a physical vapor deposition copper alloy seed chamber and the undoped copper seed chamber is a physical vapor deposition undoped copper seed chamber.

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20. (Amended) The system of claim 15, further comprising one or more transfer chambers for transferring a substrate between the atomic layer deposition barrier chamber, the copper alloy seed chamber, and the undoped copper seed chamber.

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21. (Canceled) The system of claim 15, wherein at least two of the chambers are a single chamber.

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A7  
22. (Amended) A system for processing a substrate, comprising:  
at least one atomic layer deposition barrier chamber for depositing a barrier layer;  
at least one metal seed chamber for depositing a metal seed layer over the barrier layer, wherein the metal seed layer comprises a metal selected from the group consisting of aluminum, magnesium, titanium, zirconium, tin, and combinations thereof, and  
at least one undoped copper seed chamber for depositing an undoped copper seed layer over the metal seed layer.

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23. (Canceled) The system of claim 22, further comprising a third chamber for depositing a barrier layer, wherein the metal seed layer is deposited over the barrier layer.

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A8  
24. (Amended) The system of claim 22, wherein the metal seed chamber is selected from the group consisting of a physical vapor deposition metal seed chamber, a chemical vapor deposition metal seed chamber, an atomic layer deposition metal seed chamber, and an electroless deposition metal seed chamber.

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25. (Amended) The system of claim 22, wherein the undoped copper seed chamber is selected from the group consisting of a physical vapor deposition undoped copper seed chamber, a chemical vapor deposition undoped copper seed chamber, an atomic layer deposition undoped copper seed chamber, and an electroless deposition undoped copper seed chamber.

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26. (Canceled) The system of claim 23, wherein the third chamber is selected from the group consisting of an atomic layer depositing chamber, a chemical vapor deposition chamber, and a physical vapor deposition chamber.

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27. (Amended) The system of claim 23, wherein the metal seed chamber is a physical vapor deposition metal seed chamber and the undoped copper seed chamber is a physical vapor deposition undoped copper seed chamber.

28. (Amended) The system of claim 23, further comprising one or more transfer chambers for transferring a substrate between the atomic layer deposition barrier chamber, the metal seed chamber, and the undoped copper seed chamber.

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29. (Canceled) The system of claim 23, wherein at least two of the chambers are a single chamber.

Please add new claims 30-38, as follows:

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30. (New) The system of claim 7, wherein the atomic layer deposition barrier chamber is for depositing a TaN barrier layer.

31. (New) The system of claim 30, wherein the copper alloy seed layer is deposited directly on the TaN barrier layer.

32. (New) The system of claim 11, wherein the atomic layer deposition barrier chamber is for depositing a TaN barrier layer.

33. (New) The system of claim 14, wherein the atomic layer deposition barrier chamber is for depositing a TaN barrier layer.